#3646
&

TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

February 24, 2011

TO: Internal File

THRU: Joe Helfrich, Team Lead

FROM: James D. Smith, Geology, Environmental Scientist III DS 2/24/11

RE: Kinney #2 Permit Application, Carbon Resources LLC, Kinney #2, C\007\0047, Task ID #3646

SUMMARY:

The proposed Kinney #2 Mine is located in Pleasant Valley, one half mile north of Scofield, Carbon County, Utah and east of and adjacent to Utah State Highway 96. The proposed Kinney Mine permit area covers an area of approximately 452 acres. Surface facilities will be located at the outcrop of the Hiawatha Coal Seam, on relatively flat areas near the portal and adjacent the highway. The proposed mine facilities area has been extensively disturbed by previous mine development, highway construction, and AMR projects completed in the 1980's. To the extent possible, the Applicant has tried to site the facilities to minimize additional disturbance, and entry will be via an approximately 600 foot wide corridor between old abandoned mine workings.

The proposed mine location is dry and sparsely populated by quaking aspen, a fir, and brush. Within the proposed permit area, topographic relief ranges from 7,650 feet near the highway to over 8,800 feet on the ridge to the east. All drainage eventually reports to Scofield Reservoir. With the exception of two perennial streams, drainages flow only in response to spring snowmelt or major thunderstorm events.

The underground mining operations are planned to recover coal from the Hiawatha Coal Seam, using continuous mining techniques, with no pillar recovery planned at this time. Mining will be restricted to fault-bounded blocks, and numerous faults will need to be crossed during mining operations. The Applicant has designed the mine for a nominal annual production rate of 800,000 tons of coal, with a projected life (within the currently proposed boundary) of approximately three years; there is a potential to extend the mine life significantly through acquisition of coal reserves to the south and east.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Geologic Resource Information is sufficient to meet the requirements of the Coal Mining Rules.

Sections R645-301-621 and -624 contain descriptions of the Geology for the proposed mine site and adjacent area. These include stratigraphy, lithology, structure, and faults and joints. The coal seam to be mined, rider seams, and underlying and overlying strata. Sources for the geologic information are in Section R645-301-624.130

Section R645-301-623 contains additional information on the chemical characteristics of the coal and associated strata. Table 5 presents the chemical analysis parameters used to evaluate coal, roof, and floor materials. Table 4A shows characteristics of the "reclaimed coal" buried on-site by AML, and Exhibit 6 contains the Lab analysis sheets. Non-confidential data are in Exhibit 19 (Geologic Information, Roof and Floor Analysis), and confidential data are in the Confidential folder.

Section R645-301-624 discusses roof and floor rock characteristics. Table 4 presents % saturation, pH, EC, and acid and neutralization potential data for samples taken from the roof and floor of the Hiawatha Coal Seam. Maps 34 and 45 shows sample locations. Section 645-301-627 presents the information on overburden Thickness and geology, and Table 5A contains information on strength of the roof, coal, and floor materials. Drill logs are in Exhibit 3 (Confidential Information), and analysis results are in Exhibit 19. Ground-water occurrences were noted. Exhibit 19 contains the report and data from Agapito Associates, Inc. on rock mechanics and strength.

Because there will be only first mining and no pillar pulling, there is no subsidence control or subsidence monitoring plan.

Section R645-301-631 describes the method the Applicant will use to seal bore holes. Holes to be used for ground-water monitoring will be cased, completed and developed as a

monitoring well consistent with Figure 21 and as described in Chapter 7 Section 301-738. Conversion of a water-monitoring well to a water well will comply with R645-301-731.400.

The Division identified three deficiencies relating to Geology in the September 24, 2008 Letter to the Applicant:

R645-301-624.310, The applicant shall submit drill holes (sic) showing lithologic characteristics, including physical properties and thickness of each stratum that may be impacted.

The Applicant submitted confidential drilling data for nine holes drilled in 2006. The data include geophysical logs; core logs; cuttings logs; deviation logs; coal, roof, and floor quality analysis lab sheets; completion diagrams; and a data checklist. These document the lithologic character of coal and roof and floor lithologies. Table 5A in Chapter 6 depicts physical properties of coal, roof, and floor material. Exhibit 19 contains the Agapito Associates, Inc. rock mechanics report and lab sheets.

R645-301-624.320, The applicant shall submit chemical analyses for acid- or toxic forming or alkalinity-producing materials and their content in the strata immediately above and below the coal seam to be mined.

The Applicant has addressed this in Chapter 6 under R645-301-624. Table 4 lists Roof and Floor Samples with data from Acid Forming and Neutralization Potential Analysis. Exhibit 19 contains the lab sheets. Additional lab sheets with data including Sulfur Forms of Hiawatha Seam Coal can be found in Exhibit 3 (confidential).

R645-301-624.330, The applicant shall submit Chemical analyses of the coal seam for acid or toxic forming materials, including the total sulfur and pyritic sulfur.

Lab data sheets documenting chemical analyses of the coal seam, including sulfur forms, are located in Exhibit 3 and with the previously submitted drilling data.

Findings

Geologic Resource Information is sufficient to meet the requirements of the Coal Mining Rules.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Maps showing Coal Resource and Geologic Information are sufficient to meet the requirements of the Coal Mining Rules.

Coal Resource and Geologic Information Maps

Information presented on the cross-sections and geology and isopach maps includes:

- Regional Geology - Figure 4
- Locations and elevations of drill sites and core holes – Figure 2.
- Major structural features – Figures 4,6,7,8, and 9.
- Depth (Figure 10), thickness (Figure 11), and outcrop locations (Figure 2) of the Hiawatha Coal Seam.
- Dip and strike of major formations and Hiawatha Coal Seam – Figure 5 and Map 7.
- Areas of coal previously mined – Map 5.
- Location and depth of groundwater where encountered during exploration drilling – Figure 8 and Map 9.

Well Maps

There are no oil and gas wells within the Portal Block Permit Boundary (Section 622.400).

Findings:

Maps showing Coal Resource and Geologic Information are sufficient to meet the requirements of the Coal Mining Rules.

RECOMMENDATIONS:

As regards the Utah Coal Mining Rules pertaining to Geology, the Application is complete and meets the requirements of the Rules. If there are no deficiencies in other disciplines, the Division should approve this application..

O:\007047.KN2\WG3646\3646jds.doc